FOX 500 DVI

FIBER OPTIC EXTENDER FOR DVI, AUDIO, AND RS-232

- Transmit DVI, audio, and RS-232 signals over a single fiber
- All digital, zero compression technology for high performance signal transmission
- Pixel-for-pixel image quality, up to 1600x1200
- 850 nm multimode and 1310 nm singlemode models available
- Buffered DVI input loop-through
- Real-time status LED indicators for troubleshooting and monitoring
- Alarm notification for fiber link loss
- RS-232 control at transmitter and receiver

Fox 500 DVI Tx

Fox 500 DVI Rx

The Extron FOX 500 DVI Fiber Optic Extender is a transmitter and receiver set for long haul transmission of DVI, audio, and RS-232 control signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron's exclusive all digital, zero compression technology, for pixel-for-pixel image quality, up to 1600x1200.

DESCRIPTION

The Extron **FOX 500 DVI** Fiber Optic Extender is a transmitter and receiver set for long haul transmission of DVI, audio, and RS-232 control signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron's exclusive zero compression, all digital technology to deliver perfect pixel-for-pixel transmission of computer-video images up to UXGA (1600x1200) resolution. Designed specifically for A/V systems, the FOX 500 DVI also includes a host of integrator-friendly features such as an EDID emulation mode, buffered input loop-through, RS-232 control from multiple locations, rack-mount capability, and real-time system monitoring.

The FOX 500 DVI is ideal for a wide range of applications requiring long distance transmission of high resolution content with the highest quality. Because transmission of content is inherently secure and immune to outside interference, fiber applications are favored in government, military, and medical environments. The FOX 500 DVI transmitter and receiver feature industry standard LC-type connectivity.

The FOX 500 DVI MM supports multimode fiber at 850 nm, which is typically used within buildings or facilities with moderate-range transmission distances up to 150 meters (492 feet). The FOX 500 DVI SM supports singlemode as well as multimode fiber at 1310 nm. Singlemode fiber offers long-range transmission capability over extreme distances of up to 30 km (18.75 miles). It is used in very large facilities such as airports and stadiums, and for connecting over very long distances between facilities such as university campuses.

For convenient integration into A/V systems, the FOX 500 DVI transmitter accepts and digitizes unbalanced or balanced stereo audio and RS-232 control signals, and transmits them along with the DVI-D signals. The transmitter also includes a buffered input loop-through for viewing DVI video on a local monitor. An EDID emulation mode ensures proper communication with the DVI source when no local monitor is present.

At the FOX 500 DVI transmitter, both transmitter and receiver can be controlled and configured through RS-232. With a second fiber link installed, functions for both units can be controlled at either location. Since the units are typically situated far apart, this capability adds considerable versatility, enabling adjustment and calibration of audio at the receiver. It also allows for verification of fiber link status between the units as well as the presence of DVI-D and audio input signals at the transmitter.

DVI-to-Analog RGB and Analog RGB-to-DVI Conversion
The FOX 500 DVI transmitter and receiver are available separately. Either device can be paired with the standard FOX 500 transmitter or receiver to provide ultra-long distance transmission and conversion of DVI-D signals to analog RGB and vice versa. With the second fiber link in place, the FOX 500 DVI receiver can be used to adjust and calibrate incoming analog RGB signals to the FOX 500 transmitter, or automatically set image adjustments through Auto-Image™.

The FOX 500 DVI receiver is also compatible with the FOX 500 DA6 Six Output Fiber Optic Transmitter, which enables transmission of analog RGB over up to six fiber links for distribution to multiple DVI-equipped displays.

Note: The FOX 500 DVI does not support transmission of DVI signals with HDCP - High-bandwidth Digital Content Protection.

FEATURES

- **Extends single-link DVI-D, stereo audio, and RS-232 control signals very long distances over a single fiber**
- **All digital, zero compression technology provides pixel-for-pixel performance with signals up to 1600x1200** – The FOX 500 DVI delivers uncompressed pixel-for-pixel transmission of video signals to ensure optimal image quality at resolutions up to UXGA (1600x1200).
- **EDID emulation mode** – The FOX 500 DVI transmitter provides a selector for specifying the rate of the incoming DVI signal. EDID emulation mode allows proper operation when no local monitor is present.
- **Buffered DVI input loop-through** – A buffered DVI input loop-through on the FOX 500 DVI transmitter provides an output signal to drive a local monitor.
- **Industry standard LC connectors provide reliable physical connectivity and precise fiber core alignment**
- **Alarm notification for fiber link loss** – The FOX 500 DVI can be set up to trigger an external control system for immediate notification when a fiber link has been lost. Requires second fiber link.
- **850 nm multimode and 1310 nm singlemode models available**
- **Second fiber link enables bi-directional RS-232 pass-through, control from either location, and real-time system monitoring**
- **Dual stereo audio outputs**
- **30 user memory presets** – When paired with the FOX 500 transmitter for sending analog RGB signals, these presets on the FOX 500 DVI receiver are available for saving and recall of size, position, and detail information for multiple incoming sources. The ability to save and recall presets is useful in switcher-based environments.
- **Active PC audio to balanced audio interfacing**
- **Audio gain & attenuation adjustment and muting capability**
- **RS-232 serial control at transmitter and receiver** – The FOX 500 DVI transmitter and receiver feature front and rear panel RS-232 serial ports for control and configuration. The second fiber link allows for control of both units at either location, as well as remote verification of fiber link status and the presence of input DVI and audio signals.
- **Internal test patterns for calibration and setup** – Three test patterns are available, including grayscale, color bars, and alternating pixels.
- **Auto-Image™ automatically optimizes output** – When paired with the FOX 500 transmitter for sending analog RGB signals, a press of a button on the FOX 500 DVI receiver automatically adjusts the sizing, centering, and filtering to optimize the output image. This can save time and effort in fine tuning displayed images. Requires second fiber link.
- **Real-time status LED indicators for troubleshooting and monitoring** – LEDs on the transmitter and receiver front panels verify the presence of DVI and audio signals at the transmitter as well as active fiber links between the units. Requires second fiber link.
- **Front panel security lockout** – This feature locks out all front panel functions except for input selection; all functions however, are available through RS-232 control.
- **Compatible with FOX 500 transmitter and receiver and FOX 500 DA6 transmitter/distribution amplifier** – Enables ultra-long distance DVI-to-analog RGB and analog RGB-to-DVI conversion without the need for extra signal conversion devices.
- **Rack-mountable 1U, half rack width metal enclosures**
- **Internal international power supply**

NOTE: The FOX 500 DVI consists of a transmitter (FOX 500 DVI TX) and a receiver (FOX 500 DVI RX) with one or two fiber optic cables linking the two units. They are available in single mode or multimode versions. FOX 500 DVI systems are not HDCP compliant and do not support HDCP handshaking.

NOTE: The analog audio signal(s) is (are) digitized in the transmitter, sent through the fiber cable, and converted back to analog audio in the receiver.

NOTE: These transceivers are class 1 laser products. They meet the safety regulations of IEC-60825, FDA 21, CFR 1040.10, and FDA 21 CFR 1040.11.

OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Number/type ..... 1 or 2 fiber optic

Only one fiber is required to transmit video, audio, and unidirectional data. A second fiber is required to transmit return data for bidirectional control/communication.

Connectors ..... 2 LC connectors
Operating distance ..... 30 km (18.75 miles) with singlemode (SM) cables with a FOX 500 DVI SM
0.15 km (492') with multimode (MM) cables with a FOX 500 DVI MM

NOTE: Operating distance is approximate. These are typical distances. The maximum distance may be greater than these typical numbers depending on factors such as fiber type, fiber bandwidth, connector splicing, losses, modal or chromatic dispersion, environmental factors, and kinks.

Nominal peak wavelength ..... 850 nm for FOX 500 DVI MM, 1310 nm for FOX 500 DVI SM
Data rate ..... 4.25 Gbps
Transmission power
- Singlemode ..... -5 dBm, typical
- Multimode ..... -5 dBm, typical

Maximum receiver sensitivity
- Singlemode ..... -18 dBm, typical
- Multimode ..... -12 dBm, typical

Optical loss budget
- Singlemode ..... 13 dB, maximum
- Multimode ..... 7 dB, maximum

VIDEO

Signal type ..... Single-link DVI and HDMI digital video signals are supported including 640x480 @ 60 Hz through 1600x1200 @ 60 Hz, and also HDTV signals at 480p, 720p, 1080i, and 1080p.

NOTE: The FOX 500 DVI Series can be used to distribute HDMI signals if you use a DVI-to-HDMI adapter. However, when using HDMI signals, the FOX units do not transmit audio and CEC signals.

Maximum resolution ..... 1600x1200 @ 60 Hz

VIDEO INPUT AND LOOP-THROUGH — TRANSMITTER (FOX 500 DVI TX)

Number/signal type ..... 1 DVI-D or HDMI input
1 DVI-D or HDMI loop-through
Connectors ..... 1 female DVI-I for input
1 female DVI-I for loop-through
Nominal level ..... 0.8 Vp-p
Impedance ..... 100 ohms

VIDEO OUTPUT — RECEIVER (FOX 500 DVI RX)

Number/signal type ..... 1 DVI-D or HDMI
Connectors ..... 1 female DVI-I
Nominal level ..... 0.8 Vp-p
Impedance ..... 75 ohms
Video delay ..... 1-2 frames

AUDIO

Gain
- Range ..... Adjustable, -18 dB to +10 dB
- Default
  - Captive screw connector ..... Unbalanced output: -6 dB; balanced output: 0 dB
  - Mini stereo jack ..... Unbalanced output: 0 dB

Frequency response ..... 20 Hz to 20 kHz, ±0.5 dB
THD + Noise ..... 0.10% @ 1 kHz at nominal level
S/N ..... >80 dB at maximum output (unweighted)
CMRR ..... 65 dB @ 20 Hz to 20 kHz
Audio bits per sample ..... 18 bits per channel, 2 channels (L, R)
Sampling rate ..... 48 kHz

AUDIO INPUT — TRANSMITTER (FOX 500 DVI TX)

Number/signal type ..... 2 inputs (mixed): 1 balanced stereo; 1 unbalanced stereo or 2 unbalanced mono
Connectors ..... (1) 3.5 mm captive screw connector, 5 pole
(1) 3.5 mm mini stereo jack
Impedance ..... 18k ohms unbalanced, 20k ohms balanced, DC coupled
Nominal level ..... +4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level ..... +17 dBV, (unbalanced) at 1% THD+N
NOTE: ..... 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT — RECEIVER (FOX 500 DVI RX)

Number/signal type ..... 2 buffered outputs: 1 balanced stereo; 1 unbalanced stereo or 2 unbalanced mono
Connectors ..... (1) 3.5 mm captive screw connector, 5 pole
(1) 3.5 mm mini stereo jack
Impedance ..... 50 ohms unbalanced, 100 ohms balanced
Nominal level ..... +4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level (Hi-Z) ..... >+19 dBu, unbalanced at 1% THD+N
Maximum level (600 ohm) ..... >+15 dBm, unbalanced at 1% THD+N
Audio delay ..... 1.5 frames

CONTROL/REMOTE

Serial control ports on each unit (transmitter and receiver)
- Control ..... 1 RS-232, 3.5 mm captive screw connector, 5 pole (3 pins are used) (rear panel)
  1 RS-232, 2.5 mm mini stereo jack (front panel)
- Pass-through ..... 1 RS-232, 3.5 mm captive screw connector, 5 pole (3 pins are used) (rear panel); in parallel with 1 RS-232, 2.5 mm mini stereo jack (front panel)

Baud rate and protocol
- Control ..... 9600 baud, 8 data bits, 1 stop bit, no parity
- Pass-through ..... 9600 to 38400 baud

Serial control pin configurations ..... Captive screw connectors: 1 = Tx, 2 = Rx, 3 = GND
Mini stereo jack: tip = Tx, ring = Rx, sleeve = GND
Program control ..... Extron's control/configuration program for Windows®
Extron's Simple Instruction Set (SIS™)

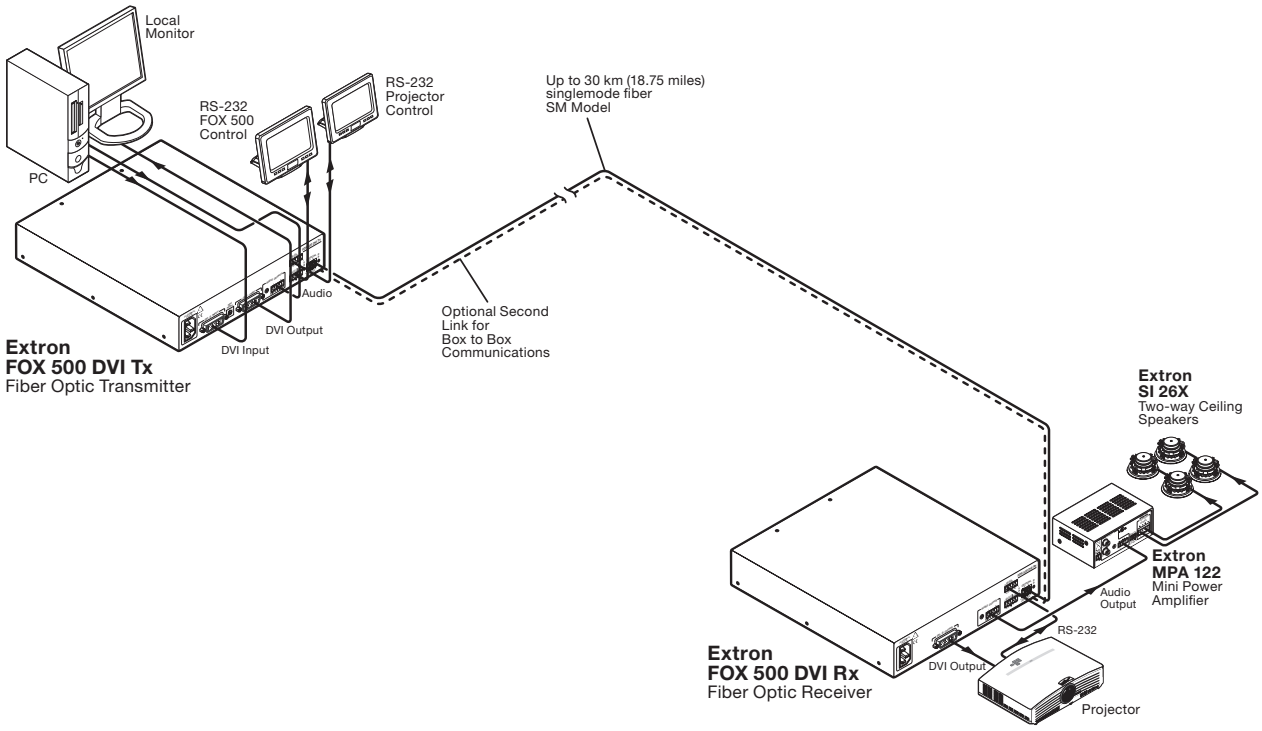
GENERAL

Power ..... 100 VAC to 240 VAC, 50/60 Hz, 11 watts, internal
Temperature/humidity ..... Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling ..... Convection, vented left to right, vents are on side panels
Rack mount ..... Yes, with optional 1U rack shelf, part #60-190-01 or 60-604-01
Furniture mountable with optional under desk mounting kit, part #70-077-01
Enclosure type ..... Metal
Enclosure dimensions ..... 1.7" H x 8.7" W x 9.5" D (1U high, half rack wide)
4.3 cm H x 22.1 cm W x 24.1 cm D
(Depth excludes connectors and knobs.)
Product weight ..... 4.6 lbs (2.1 kg)
Shipping weight ..... 8 lbs (4 kg) per pair
Vibration ..... ISTA 1A in carton (International Safe Transit Association)
Listings ..... UL, CUL
Compliances ..... CE, FCC Class A, VCCI, AS/NZS, ICES, FDA Class 1
MTBF ..... 30,000 hours
Warranty ..... 3 years parts and labor
NOTE: All nominal levels are at ±10%.

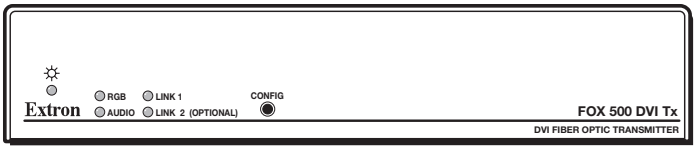
Model	Version Description	Part Number
FOX 500 DVI Tx MM	850 nm Multimode - Transmitter	60-859-11
FOX 500 DVI Rx MM	850 nm Multimode - Receiver	60-859-21
FOX 500 DVI Tx SM	1310 nm Singlemode - Transmitter	60-859-12
FOX 500 DVI Rx SM	1310 nm Singlemode - Receiver	60-859-22

Specifications are subject to change without notice.

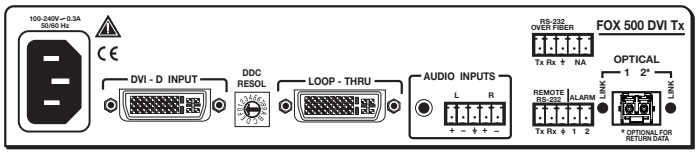
APPLICATION DIAGRAM



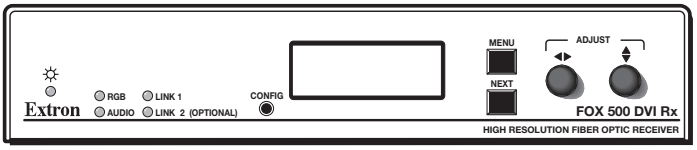
PANEL DRAWINGS



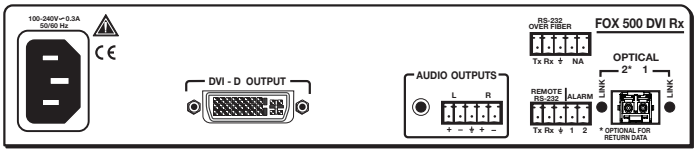
FOX 500 DVI Tx - Front



FOX 500 DVI Tx - Back



FOX 500 DVI Rx - Front



FOX 500 DVI Rx - Back

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